IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1-16. (Cancelled)

17.(New) A method of producing in a solid transparent material, a hologram of an object, comprising the steps of:

developing a three-dimensional mathematical model of an electro- magnetic field emanating from said object, said field producing an image of said object;

providing a pulsed laser beam, said beam being capable, when focused, of causing optical breakdown damage in said solid transparent material, each point of said optical breakdown damage being a light scattering center;

computing a three-dimensional set of points, such that light scattered from scattering centers located at said set of points holographically reconstructs said three-dimensional model; and

focusing said pulsed laser beam onto each of said computed set of points, thus creating said scattering centers, which collectively define said hologram.

18. (new) The method of claim 17, wherein the length of the pulses of said pulsed laser beam are less than tens of picoseconds.

19. (new) The method of claim 17, wherein said object is a real object.

20. (new) The method of claim 17, wherein said object is a virtual object.

21. (new) The method of claim 17, further comprising the step of arranging said set of points as a set of diffraction lattices.

22. (new) The method of claim 21, wherein said set of diffraction lattices are such that light diffracted from said scattering centers located at said set of points forms a three-dimensional colored image.

23. (new) The method of claim 21, wherein said set of diffraction lattices are such that light diffracted from said scattering centers located at said set of points forms a steroscopic image.

24. (new) The method of claim 21, wherein said set of diffraction lattices are such that light diffracted from said scattering centers located at said set of points forms an image capable of being viewed from a plurality of angles.